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ABSTRACT

There has been dramatic growth at community colleges over the past decade in the use of computer and video technology in instruction programs, in academic and career counseling processes, to access libraries and other information databases, and for specific student support services. This has resulted in the creation of new support staff positions to manage computer programs, maintain equipment, and train staff. Since resources available to two-year colleges remain scarce, the increased use of computer technology raises important questions about sources of money to support initial capital investments and cover ongoing costs of instructional technology, and the ability of colleges to afford using both traditional and new technology-based instructional delivery systems. In California, a substantial portion of the funds used to purchase instructional technology in recent years has come from state equipment allocations paid for by voter approved bonds and state lottery allocations. The continued availability of these allocations is uncertain. Institutional operating costs are rising faster than cost-of-living adjustments from the state, and community colleges are in essence diverting funds from other areas of their budgets to pay for technology-based instructional delivery systems that operate alongside existing delivery systems. Community college leaders, therefore, should begin experimenting with methods of incorporating instructional technology into restructured delivery systems that utilize the capabilities of technology while maintaining the benefits of existing systems. (PAA)

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ARE WE USING INSTRUCTIONAL TECHNOLOGY EFFECTIVELY?

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There has been dramatic growth over the past decade in the use of technology in community college instructional and student services programs. New computer labs have been introduced to supplement instruction in courses throughout the curriculum, from accounting to English composition to nursing. A growing number of instructional programs, such as office education, drafting/CAD, graphics and journalism, are now being taught in computer-equipped labs. Faculty members are increasingly using computers and video technology in their classrooms as presentation tools, in their offices as wordprocessing and course management tools, and in learning resource centers/open computer labs as a means of providing students with supplemental drill and problem-solving exercises.

Computers are also being used in academic and career counseling processes, accessing information from libraries and databases, and in special support service programs such as the adapted computer labs used in some Disabled Student Programs and Services programs. This rapid growth in the use of instructional technology has resulted in the creation of new support staff positions to coordinate an institution's instructional computing programs, manage networked computer labs, maintain and repair the equipment, and provide training to staff.

PROBLEM. The purpose of this article is not to challenge the value and wisdom of devoting an increasing amount of a college's scarce resources to instructional technology, but rather to raise the following questions:

(1) Where will the money come from to support the initial capital investment and cover the ongoing costs of supporting instructional technology? and,

(2) Can community colleges continue to afford using instructional technology primarily as a supplemental system for delivering instruction?

It is important that these questions be addressed at this time in light of the following: (1) the introduction of computer/video technology in instruction often represents new initial and ongoing costs to the college instead of substituting one set of costs for another; (2) many of the current and planned applications of educational technology are designed to supplement existing instructional delivery systems, thus increasing the cost of instruction; and (3) in the foreseeable future, community colleges will be fortunate to maintain their current funding levels which means that any new costs

associated with instructional technology will have to be paid for by diverting resources from other areas of a college's budget. Finding funds to support a supplementary instructional delivery system will become increasingly difficult at a time when 83 to 87 percent of an institution's budget is allocated to salaries and benefits and when many of the demands on the balance of the budget are projected to increase (e.g., utility costs, insurance and legal fees, maintenance of facilities, replacement of inventory) at a higher rate than anticipated state COLAs.

EXAMPLES OF ADDED COSTS ASSOCIATED WITH CURRENT APPLICATIONS OF INSTRUCTIONAL TECHNOLOGY. The following examples are provided to illustrate how the introduction of instructional technologies found at many community colleges represent new initial and ongoing costs. A new 25 - station, networked math computer lab was created at Santa Barbara City College to provide students with supplemental instruction. A number of math faculty require their students to use this computer lab to complete required homework assignments and to gain additional help in learning the competencies covered in class. Since the computer equipment, software and furniture acquired for this lab did not replace existing inventory used in the teaching of math, it represented a new initial cost to the college. New ongoing costs to operate this computer lab include a computer coordinator to manage the computer network and lab operations, tutors to assist students with problems they encounter in working with the software, new computer software and hardware upgrades, computer paper, replacement of printer cartridges, funds to pay for faculty and support staff participation in staff development activities, and staff time required to maintain the equipment in this facility.

At the other end of the cost continuum is the example of faculty members in the college's Social Sciences Division who are using computer-based equipment to create customized videotapes for their classes. As with the math lab, the introduction of this technology did not replace an existing expense, which means that the initial and ongoing costs represent new expenditures. While the ongoing cost of the hardware and software upgrades and equipment repairs associated with this application of instructional technology is not in and of itself particularly high in a given year, it becomes part of a rather substantial expense item when the costs associated with all of the other instructional technologies used by faculty and support staff are taken into account.

WHERE ARE THE FUNDS TO SUPPORT EDUCATIONAL TECHNOLOGY?

In recent years a substantial portion of the funds used to purchase instructional technology has come from state equipment allocations paid for by voter approved bonds, state Lottery allocations and, to a lesser extent, grants and donations. The continued availability of these non-general fund allocations for equipment is uncertain. During a period when institutional operating costs are rising at a faster rate than COLA adjustments from the State, community colleges are in essence diverting funds from other areas of their budgets (e.g., instructional and support service programs, inventory

replacement, maintenance of the physical plant and/or salaries) to pay for the new ongoing costs needed to support instructional technology. Thus, the continued rapid growth in faculty and support staff interest in incorporating educational technology into their programs will be accompanied by increased competition for scarce internal funds.

There are at least three potential avenues college leaders can pursue to support the continued expansion of instructional technology at their campuses. One option is to work to change federal and state funding priorities so that more money flows to postsecondary education. Many do not see this happening in the near future. A second option is to continue to divert funds from other areas of the institution's budget. A potential downside of this approach is that it can weaken existing instructional and non-instructional programs by either reducing their operating funds or by depriving them of resources needed to remain excellent. A third option for supporting the expansion of educational technology is to use this technology to rethink how instruction and support services can best be delivered to students.

CAN EDUCATIONAL TECHNOLOGY BE USED MORE EFFECTIVELY?

In the September issue of The Chronicle of Higher Education, Bernard Gifford of Apple Computer noted that when we use computers, " . . . we use them as presentation tools that add multisensory reinforcement and excitement to our lectures; we use them to present supplementary material in computer labs; we use them to simulate situations that require problem solving. All of these applications are very important. But they do not yet approach the goal of having integrated college-level courseware. They do not take advantage of today's most exciting technology: networked, interactive multimedia. They do not create a learning environment that is self-paced, learner - controlled, and individualized--features that are crucial to adult learners" (p. A20).

Experiments using technology to alter instructional delivery systems are being planned and implemented at all levels of education, as well as in business and industry. To illustrate, in the September 14, 1992 issue of Business Week it was reported that the initial plans for the national network of 200 for-profit schools that are part of Whittle Communications' Edison Project include having students spend two 90-minute sessions with an electronic learning system that customizes itself to a student's academic needs. This application of computer and video technology will free teachers to have enough time to spend an hour or more every week in one-on-one work with each student (p. 70).

The choice facing community college leaders is clear: either we continue to divert resources from existing programs to support a technology-based instructional delivery system that operates alongside our existing delivery system, or we begin experimenting with methods of incorporating technology into a restructured delivery system that will enable us to educate our students in a more efficient manner. Creative approaches need to be developed that utilize the capabilities of educational technology in the learning

process while maintaining the critically important human interaction between students and faculty.